

Appl. No. 09/491,991
Amtd. Dated November 3, 2005
Reply to final Office action of May 3, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method to manage congestion in a network, the method comprising:
determining a congestion status associated with a node in one of a single peer group and a hierarchical level in the network; and
broadcasting the congestion status to at least one other node in the one of the single peer group and the hierarchical level in the network, the at least one other node capable of measuring node condition used to indicate node congestion.
2. (original) The method of claim 1 wherein determining the congestion status comprises:
measuring a node condition at the node, the node condition corresponding to the congestion status.
3. (previously presented) The method of claim 1 wherein broadcasting the connection status comprises:
setting a transit flag, the transit flag being accessible to the at least one other node.
4. (original) The method of claim 1 wherein the node is one of a transit node and a terminating node.
5. (previously presented) The method of claim 1 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.
6. (previously presented) The method of claim 1 wherein the at least one other node is one other logical node in the hierarchical level, the one other logical node corresponding to one other peer group at a next lower level.

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7. (previously presented) The method of claim 1 wherein the network is an asynchronous mode transfer (ATM) network.

8. (previously presented) The method of claim 3 wherein the node is one of a private network-to-network interface (PNNI) node.

9. (original) The method of claim 8 wherein the transit flag is one of a PNNI topology state parameter.

10. (currently amended) A method to manage congestion in a network, the method comprising:

receiving a congestion status associated with a node in one of a single peer group and a hierarchical level in the network, the congestion status corresponding to a measured node condition at the node and being broadcast by the node to at least one other node, the at least one other node capable of measuring node condition used to indicate node congestion; and

routing a call to the node based on the received congestion status.

11. (original) The method of claim 10 wherein receiving the congestion status comprises accessing a transit flag set by the node, the transit flag corresponding to the congestion status.

12. (previously presented) The method of claim 10 wherein the node is one of a transit node and a terminating node.

13. (previously presented) The method of claim 10 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.

14. (previously presented) The method of claim 10 wherein routing the call to the node comprises:

routing the call to the node if the node is a terminating node; and

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routing the call to the node if the node is a transit node and the congestion status indicates that the node is not congested.

15. (previously presented) The method of claim 10 wherein the network is an asynchronous mode transfer (ATM) network.

16. (previously presented) The method of claim 11 wherein the node is one of a private network-to-network interface (PNNI) node.

17. (original) The method of claim 16 wherein the transit flag is one of a PNNI topology state parameter.

18. (currently amended) A computer program product comprising:
a computer usable medium having computer program code embodied therein for managing congestion in a network, the computer program product having:
computer readable program code for determining a congestion status associated with a node in one of a single peer group and a hierarchical level in the network; and
computer readable program code for broadcasting the congestion status to at least one other node in the one of the single peer group and the hierarchical level in the network, the at least one other node capable of measuring node condition used to indicate node congestion.

19. (original) The computer program product of claim 18 wherein the computer readable program code for determining the congestion status comprises:
computer readable program code for measuring a node condition at the node, the node condition corresponding to the congestion status.

20. (previously presented) The computer program product of claim 18 wherein the computer readable program code for broadcasting the connection status comprises:
computer readable program code for setting a transit flag, the transit flag being accessible to the at least one other node.

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21. (original) The computer program product of claim 18 wherein the node is one of a transit node and a terminating node.
22. (previously presented) The computer program product of claim 18 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.
23. (previously presented) The computer program product of claim 18 wherein at least one other node is one other logical node in the hierarchical level, the one other logical node corresponding to one other peer group at a next lower level.
24. (previously presented) The computer program product of claim 18 wherein the network is an asynchronous mode transfer (ATM) network.
25. (previously presented) The computer program product of claim 20 wherein the node is one of a private network-to-network interface (PNNI) node.
26. (original) The computer program product of claim 25 wherein the transit flag is one of a PNNI topology state parameter.
27. (currently amended) A computer program product comprising:
a computer usable medium having computer program code embodied therein for managing congestion in a network, the computer program product having:
computer readable program code for receiving a congestion status associated with a node in one of a single peer group and a hierarchical level in the network, the congestion status corresponding to a measured node condition at the node and being broadcast by the node to at least one other node, the at least one other node capable of measuring node condition used to indicate node congestion; and
computer readable program code for routing a call to the node based on the received congestion status.

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28. (original) The computer program product of claim 27 wherein the computer readable program code for receiving the congestion status comprises computer readable program code for accessing a transit flag set by the node, the transit flag corresponding to the congestion status.

29. (previously presented) The computer program product of claim 27 wherein the node is one of a transit node and a terminating node.

30. (previously presented) The computer program product of claim 27 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a pccr group at a next level.

31. (previously presented) The computer program product of claim 27 wherein the computer readable program code for routing the call to the node comprises:

computer readable program code for routing the call to the node if the node is a terminating node; and

computer readable program code for routing the call to the node if the node is a transit node and the congestion status indicates that the node is not congested.

32. (previously presented) The computer program product of claim 27 wherein the network is an asynchronous mode transfer (ATM) network.

33. (previously presented) The computer program product of claim 28 wherein the node is one of a private network-to-network interface (PNNI) node.

34. (original) The computer program product of claim 33 wherein the transit flag is one of a PNNI topology state parameter.

35. (currently amended) A system interfacing to a network comprising:
a processor coupled to the network; and

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a memory coupled to the processor, the memory containing program code for managing congestion in the network, the program code when executed causing the processor to:

determine a congestion status associated with a node in one of a single peer group and a hierarchical level in the network, and

broadcasting the congestion status to at least one other node in the one of the single peer group and the hierarchical level in the network, the at least one other node capable of measuring node condition used to indicate node congestion.

36. (original) The system of claim 35 wherein the program code causing the processor to determine the congestion status causes the processor to:

measure a node condition at the node, the node condition corresponding to the congestion status.

37. (previously presented) The system of claim 35 wherein the program code causing the processor to broadcast the connection status causes the processor to:

set a transit flag, the transit flag being accessible to the at least one other node.

38. (original) The system of claim 35 wherein the node is one of a transit node and a terminating node.

39. (previously presented) The system of claim 35 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.

40. (previously presented) The system of claim 35 wherein the at least one other node is one other logical node in the hierarchical level, the one other logical node corresponding to one other peer group at a next lower level.

41. (original) The system of claim 40 wherein the network is an asynchronous mode transfer (ATM) network.

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42. (original) The system of claim 41 wherein the node is one of a private network-to-network interface (PNNI) node.

43. (original) The system of claim 42 wherein the transit flag is one of a PNNI topology state parameter.

44. (currently amended) A system interfacing to a network comprising:
a processor coupled to the network; and
a memory coupled to the processor, the memory containing program code for managing congestion in the network, the program code when executed causing the processor to:
receive a congestion status associated with a node in one of a single peer group and a hierarchical level in the network, the congestion status corresponding to a measured node condition at the node and being broadcast by the node to at least one other node, the at least one other node capable of measuring node condition used to indicate node congestion, and
route a call to the node based on the received congestion status.

45. (original) The system of claim 44 wherein the program code causing the processor to receive the congestion status causes the processor to access a transit flag set by the node, the transit flag corresponding to the congestion status.

46. (previously presented) The system of claim 44 wherein the node is one of a transit node and a terminating node.

47. (previously presented) The system of claim 44 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.

48. (previously presented) The system of claim 44 wherein the program code causing the processor to route the call to the node causes the processor to:
route the call to the node if the node is a terminating node; and
route the call to the node if the node is a transit node and the congestion status indicates that the node is not congested.

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49. (previously presented) The system of claim 44 wherein the network is an asynchronous mode transfer (ATM) network.

50. (previously presented) The system of claim 45 wherein the node is one of a private network-to-network interface (PNNI) node.

51. (original) The system of claim 50 wherein the transit flag is one of a PNNI topology state parameter.

52. (currently amended) An apparatus to manage congestion in a network comprising:

means for determining a congestion status associated with a node in one of a single peer group and a hierarchical level in the network; and

means for broadcasting the congestion status to at least one other node in the one of the single peer group and the hierarchical level in the network, the at least one other node capable of measuring node condition used to indicate node congestion.

53. (previously presented) The apparatus of claim 52 wherein the means for determining the congestion status comprises:

means for measuring a node condition at the node, the node condition corresponding to the congestion status.

54. (previously presented) The apparatus of claim 52 wherein the means for broadcasting the connection status comprises:

means for setting a transit flag, the transit flag being accessible to the at least one other node.

55. (previously presented) The apparatus of claim 52 wherein the node is one of a transit node and a terminating node.

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56. (previously presented) The apparatus of claim 52 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.

57. (previously presented) The apparatus of claim 52 wherein the at least one other node is one other logical node in the hierarchical level, the one other logical node corresponding to one other peer group at a next lower level.

58. (previously presented) The apparatus of claim 52 wherein the network is an asynchronous mode transfer (ATM) network.

59. (previously presented) The apparatus of claim 54 wherein the node is one of a private network-to-network interface (PNNI) node.

60. (previously presented) The apparatus of claim 59 wherein the transit flag is one of a PNNI topology state parameter.

61. (currently amended) An apparatus to manage congestion in a network comprising:

means for receiving a congestion status associated with a node in one of a single peer group and a hierarchical level in the network, the congestion status corresponding to a measured node condition at the node and being broadcast by the node to at least one other node, the at least one other node capable of measuring node condition used to indicate node congestion; and

means for routing a call to the node based on the received congestion status.

62. (previously presented) The apparatus of claim 61 wherein the means for receiving the congestion status comprises:

means for accessing a transit flag set by the node, the transit flag corresponding to the congestion status.

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63. (previously presented) The apparatus of claim 61 wherein the node is one of a transit node and a terminating node.

64. (previously presented) The apparatus of claim 61 wherein the node is a logical node in the hierarchical level, the logical node corresponding to a peer group at a next lower level.

65. (previously presented) The apparatus of claim 61 wherein the means for routing the call to the node comprises:

means for routing the call to the node if the node is a terminating node; and

means for routing the call to the node if the node is a transit node and the congestion status indicates that the node is not congested.

66. (previously presented) The apparatus of claim 61 wherein the network is an asynchronous mode transfer (ATM) network.

67. (previously presented) The apparatus of claim 62 wherein the node is one of a private network-to-network interface (PNNI) node.

68. (previously presented) The apparatus of claim 67 wherein the transit flag is one of a PNNI topology state parameter.